

WHAT IS CLAIMED IS:

1. An optical projection system, capable of receiving a first light beam, a second light beam, and a third light beam, the projection system comprising:

a color-combination prism, allowing the light beams to respectively enter three surfaces of the color-combination prism, so as to form a mixed beam to emit out from another surface;

a projection lens set, for receiving the mixed beam for projection; and

each of the light beams comprising:

a liquid crystal reflection panel; and

a wire grid polarizer (WGP),

wherein the liquid crystal reflection panels are parallel to the corresponding entering three surfaces, wherein before the light beams enter the color-combination prism, the polarized light beams are reflected by the WGPs onto the liquid crystal reflection panels and then the liquid crystal reflection panels reflect the light beams respectively with another polarization state, so as to pass through the WGPs and propagate directly toward the color-combination prism.

2. The optical projection system of claim 1, wherein each of the WGPs allows a light component with a first polarization state to pass, and reflects a light component with a second polarization state.

3. The optical projection system of claim 1, wherein each of the liquid crystal reflection panels includes a plurality of pixels, whereby an incident polarization state with respect to each of the pixels can be changed to the desired polarization state, so as to transmit the WGPs.

4. The optical projection system of claim 3, wherein the liquid crystal reflection

panels provide an image pattern by changing the polarization state.

5. The optical projection system of claim 1, wherein the color-combination prism includes an X-cube.

6. The optical projection system of claim 1, further comprising a first color splitter, to split a light source into a first primary color beam and a color mixing beam.

7. The optical projection system of claim 6, further comprising a second color splitter, to split the color mixing beam into a second primary color beam and a third primary color beam.

8. The optical projection system of claim 1, wherein a light path of each of the light beams includes a polarizer, whereby the light beams are first reflected to the WGP.

9. The optical projection system of claim 1, wherein the liquid crystal reflection panels includes a liquid crystal on silicon (LCOS) panel.

10. An optical projection method, for receiving a first light beam, a second light beam, and a third light beam and projecting, the method comprising:

providing a light source;

splitting the light source into different color light beams;

leading each of the color light beams to respectively enter a wire grid polarizer (WGP), which reflects the light beam to a liquid crystal reflection panel, wherein each the liquid crystal reflection panel has a plurality of pixels;

controlling each of the pixels of the liquid crystal reflection panel to have a polarization state with respect to the pixels for the reflection light beam; and

leading the light beams reflected from the liquid crystal reflection panels to directly transmit the WGP and combining the light beams into a mixed light beam.

11. The method of claim 10, wherein the WGP allows a light component with a first polarization state to pass, and reflects a light component with a second polarization state.

12. The method of claim 10, wherein the liquid crystal reflection panels includes
5 a liquid crystal on silicon (LCOS) panel.

13. The method of claim 10, wherein the step of leading the light beams reflected from the liquid crystal reflection panels includes using a color-combination prism to obtain the mixed light beam.

14. The method of claim 13 wherein the color-combination prism includes an X-
10 cube.